

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/GB05/000377

International filing date: 03 February 2005 (03.02.2005)

Document type: Certified copy of priority document

Document details: Country/Office: GB
Number: 0402421.2
Filing date: 04 February 2004 (04.02.2004)

Date of receipt at the International Bureau: 02 March 2005 (02.03.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse



INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

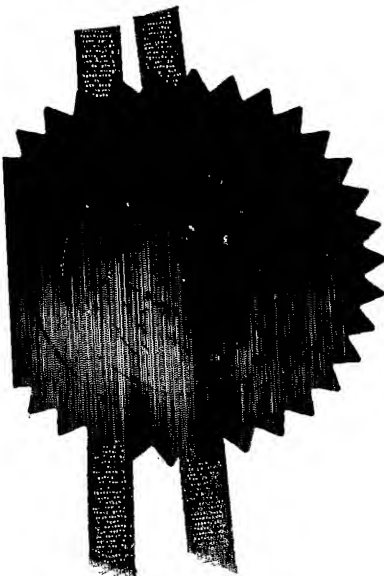
In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

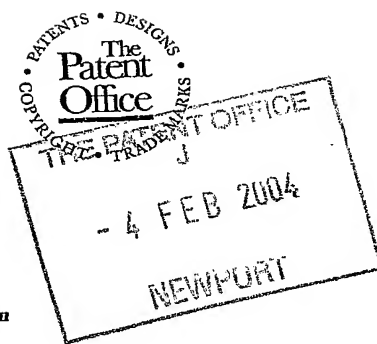
Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Dated 22 February 2005







04FEB04 0870629-1 002896
P01/7700-0-00-0402421.2 NONE

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

1. Your reference

RAB.P04954GB

2. Patent application number

(The Patent Office will fill this part in)

04 FEB 2004

0402421.2

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Julian Mark Douglas Ashbourn
68 Kitsbury Road, Berkhamsted,
Herts HP4 3EG

08802761001

Patents ADP number (if you know it)

John William Topping

34 Baveney Road, Worcester WR2 6DS

If the applicant is a corporate body, give the country/state of its incorporation

08802779001

4. Title of the invention

Automatic Performance Calibration (APC) for
Biometric Devices

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Marks & Clerk
27 Imperial Square
Cheltenham
Gloucestershire GL50 1RQ

Patents ADP number (if you know it)

00000018014

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

Number of earlier UK application

Date of filing
(day / month / year)

8. Is a Patents Form 7/77 (Statement of inventorship and of right to grant of a patent) required in support of this request?

No

Answer YES if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

Otherwise answer NO (See note d)

Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form	0
Description	2
Claim(s)	0
Abstract	0
Drawing(s)	0

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for a preliminary examination and search (Patents Form 9/77)

Request for a substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature(s)

Marks & Clerk

Date

3 February 2004

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

Richard Bailey

01242 524520

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered YES in part 8, a Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- Part 7 should only be completed when a divisional application is being made under section 15(4), or when an application is being made under section 8(3), 12(6) or 37(4) following an entitlement dispute. By completing part 7 you are requesting that this application takes the same filing date as an earlier UK application. If you want the new application to have the same priority date(s) as the earlier UK application, you should also complete part 6 with the priority details.

Automatic Performance Calibration (APC) for biometric devices

Introduction

As the principle of biometric personal identity verification becomes widespread, as in public applications for example, the issue of interoperability and equivalence of performance adopts increasing importance. This is particularly the case where applications are operated over multiple sites. In such an instance, a given individual may pass a biometric check at one location and fail at another, even using the same reference template and similar hardware. If the biometric equipment at a particular point of presence is calibrated differently to equipment at another, it is likely that actual performance will also vary, creating a high probability of the scenario mentioned above. The situation is further complicated by variables of environment and user psychology, making equivalence of both performance and user experience problematic. This can lead to further complications of process, especially in high profile applications such as border crossing, social service provision and the like.

The Proposal

It is proposed that an Automatic Performance Calibration (APC) module be created to continually monitor transactional performance and re-calibrate the biometric device automatically as required in order to achieve a pre-determined performance level. It is important to note the distinction between performance calibration and absolute calibration. The former seeks to achieve a given actual performance (in terms of acceptable error rates) while the latter is simply calibration to a known reference.

The APC module will adjust device performance dynamically according to a pre-determined reference. The organisation implementing the biometric application may thus specify a target level of performance and the biometric devices deployed will be automatically and continually calibrated in order to achieve this level of performance (providing of course it is within the bounds of the device in question). The APC module will be provided as software which may be easily integrated with operational software and hardware for the purpose of biometric identity verification checks.

Operation

Operation of the APC is as follows. The biometric device will, upon each attempted transaction, output a 'score' to indicate how closely the live biometric sample matches with the stored reference. Within the range of possible scores will be a threshold level, below which a match will be regarded as negative, above which a match will be regarded as positive. This threshold setting is sometimes manually programmable and will determine the relative performance of the device in question, in terms of realised error rates. The APC will continually adjust this threshold in order to realise the desired performance level.

Description

Automatic Performance Calibration (APC) for biometric devices

The operational steps are as follows;

- 1] Upon a match transaction, the biometric device outputs a score.
- 2] The APC numbers each transaction and writes the score to a database.
- 3] Upon reaching a set number of transactions (programmable) the APC sums the scores and divides the total by the number of transactions in order to arrive at an average score.
- 4] The APC compares this average score with the pre-programmed aspirational performance.
- 5] If the score is not aligned with the required performance according to a given tolerance, the threshold setting of the biometric device will be altered in order to realise a closer alignment.
- 6] The process will be repeated after every batch of transactions, ensuring that actual performance is maintained.

The use of APC with a given biometric device, such as may be found within a self service kiosk for example, will ensure that a given level of performance is maintained, regardless of initial device calibration, environmental and operational variables, or other conditions which may affect realised performance. Furthermore, this benefit is increased pro rata as the number of deployed devices increases, an important consideration for major applications.

Conclusion

The APC represents an innovative breakthrough with regard to the realised and sustainable performance of biometric identity verification devices. As such, it will play an important part in large scale public applications which utilise biometric technology.

A software simulation of the APC will be built in order to demonstrate this concept.



